

and limited lamb survival. This hunting district will support a harvest of two to three rams: year without reducing population viability at the current herd size.

## Prescriptive Harvest Management

**Ewes:** Bighorn sheep populations are managed where necessary through limited-entry harvest of the female segment. In Hunting District 503, sheep populations have never reached levels that necessitate or could support ewe harvest. Natural regulation through limited winter habitat and forage holds the population at relatively low levels.

**Rams:** The long-term harvest management strategy goal is to set the ram license level equal to the average number of three-year-old rams seen during winter trend counts. These are the rams that will be entering the  $\frac{3}{4}$ -curl age class the following year. This strategy eliminates the need to constantly juggle license numbers based on slight variations in ram recruitment.

## FERGUS, LITTLE ROCKIES, MIDDLE MISSOURI BREAKS, CHOUTEAU-BLAINE-PHILLIPS (MISSOURI RIVER BREAKS COMPLEX)

(Hunting Districts 482, 620, 622, 680)



**Description:** The Missouri River Breaks Complex, comprised of bighorn sheep Hunting Districts 482, 620, 622 and 680, represents approximately 3,863mi<sup>2</sup>. Approximately 475mi<sup>2</sup> (12%) of these hunting districts are currently occupied by bighorn sheep during some portion of the year. The higher-quality sheep habitat includes the steep-walled canyons and adjacent ridges and benches (breaks) of the Missouri River, primarily between the mouth of the Judith River on the west and Timber Creek on the east.

Twenty-one percent of the area occupied by bighorn sheep is private land and 72% is federal land: 58% managed by the Bureau of Land Management (BLM) and 14% managed by the U.S. Fish and Wildlife Service (USFWS). Six percent is State Trust land, and less than

1% is Fort Belknap Indian Reservation tribal land. Most of the BLM land is located within the Upper Missouri River Breaks National Monument. All USFWS land is within the Charles M. Russell National Wildlife Refuge (NWR).

The Missouri River Breaks bighorn sheep use many different areas throughout the year, but there is no distinctly recognized winter range. Cattle graze the less steep bench tops and river and creek bottoms on privately owned and BLM-managed federal lands. Small grains are grown on some of the larger, privately owned benches. There are six Wilderness Study Areas (WSAs) on BLM lands (five within Hunting Districts 680 and 482 and one within Hunting District 622) and two Proposed Wilderness Areas on the Charles M. Russell NWR in Hunting District 622 that lie within occupied sheep range.

**Public access:** The Missouri River Breaks provides a diversity of hunting experiences, including motorized hunting on portions of the periphery, walk-in hunting on the interior, and access by boat along the Missouri River and Fort Peck Reservoir. Access to the public lands is somewhat restricted as most roads to public lands cross privately owned lands. At this point in time, many private landowners allow public access across their property to public lands having sheep. Some also allow access to sheep on their own property. In addition, there are numerous public access roads that do provide access to sheep habitat on BLM land (the Whiskey Ridge, Stafford Ferry, Sunshine Ridge, DY Trail, and Lower Two Calf Roads in Hunting District 482; the Zortman and Landusky Roads in Hunting District 620; the Telegraph Creek, Kill Women Creek, and Plum Creek Roads in Hunting District 622; and the Gist Ranch Road and the Lloyd Road in Hunting District 680). The Upper Missouri River Breaks National Monument travel plan will close some spur roads in order to provide habitat security for sheep. Ongoing efforts are being made by FWP to enter into access agreements with private landowners to continue to provide public access across their property to important public lands. All motorized trails have been closed on Proposed Wilderness Areas within the Charles M. Russell NWR, however, the Missouri River and Fort Peck Reservoir also provide access to BLM and USFWS lands.

**Bighorn Sheep Populations:** Throughout the 1800s early explorers, pioneers, and river travelers commonly observed bighorn sheep along the Missouri River in what is now eastern and central Montana. By the early

part of the 20th century, the combination of livestock competition, habitat loss, disease, and unregulated hunting had contributed to the extirpation of bighorn sheep from the Missouri River Breaks of Montana. By the 1940s, plans were underway to reintroduce sheep back into the Breaks.

In 1947, 16 bighorns from Colorado were reintroduced into Billy Creek in northern Garfield County. By 1951, this population had more than tripled to an estimated 54 animals. A limited license hunting season was instituted in 1955. Two sheep were harvested in 1955, none in 1956, but by 1963 this population had disappeared. The demise was attributed to habitat deficiencies, competition with livestock for forage, disease, and social and physiological complications from overlap with domestic sheep.

From 1958 to 1961, a total of 45 bighorn sheep were released into a 1,400-acre enclosure at the mouth of Two Calf Creek in Fergus County, located on the Missouri River on the western edge of the Charles M. Russell NWR. Transplants consisted of 9 sheep from the Sun River in 1958, 13 sheep from the National Bison Range in 1959, 11 sheep from the National Bison Range in 1960 and 12 sheep from the Sun River in 1961. By 1969, this population, which regularly moved in and out of the enclosure, had increased to about 90 animals. Limited license hunting was instituted in 1969. Eighteen licenses were issued during 1969, 1970, and 1971 in this area (Hunting District 482). During the winter of 1971-72, the population experienced a die-off. During the remainder of the 1970s, the population was stable at 20 to 30 animals and hunting of this population was closed.

In 1980, 28 bighorn sheep from the Sun River were released 25 miles farther up the Missouri River at Chimney Bend, near Lone Pine Rapids, in Fergus County. Upon release, some of the sheep quickly crossed to the north side of the river. These sheep subsequently pioneered into adjoining Breaks habitat on both sides of the river 20 miles farther upriver to Birch Creek and the mouth of the Judith River and downriver, where they merged with the surviving sheep near the mouth of Two Calf Creek. In 1986, this population was estimated at 105 animals. In 1987, limited license hunting was instituted for this population occupying the north and south side of the Missouri River (Hunting District 680). After 1987, the population continued to increase. Fixed-wing aerial surveys were conducted by FWP and BLM in 1990, 1992, and 1994. In 1995, a complete coverage aerial survey, using a helicopter, found 462 sheep (227 on the north side of the Missouri and 235 on the south side). In 1996, to

expand the distribution of hunters and harvest, this large sheep population and hunting district was split into two hunting districts: the north side became Hunting District 680 and the south side became Hunting District 482.

In 1980, 28 bighorn sheep from the Sun River were also released into the Mickey-Brandon Buttes area in Phillips County, on the north side of Fort Peck Reservoir on the Charles M. Russell NWR. Approximately half of these sheep immediately left the transplant area and moved 13 miles farther east into the Iron Stake Ridge/Larb Hills area. In 1986, a total of 90 sheep were observed during ground surveys, and a limited license hunting season was instituted for these two fairly distinct herds in Hunting District 622. Some interchange of rams apparently takes place between the Mickey-Brandon Buttes and Iron Stake Ridge/Larb Hills sheep herds. Sheep habitat in both areas appears to be filled; however, there is additional sheep habitat east of the Larb Hills across Timber Creek, where sheep are pioneering. Sheep habitat in the Mickey-Brandon Buttes area is the more limited, and habitat degradation and disease is a concern.

In 1972, 42 bighorn sheep were transplanted from the Sun River into the Little Rocky Mountains outside of the Fort Belknap Indian Reservation, on the northern edge of the Missouri River Breaks, in Phillips County. An additional 21 sheep from the Sun River were released in 1974. Surveys from 1981 to 1986 indicated that this sheep population was fairly stable at approximately 60 observed sheep. In 1982, a total of 59 sheep were counted during ground surveys and a limited license hunting season was initiated in Hunting District 620. Sheep numbers peaked in 1996 when 87 sheep were observed during a helicopter survey, but the population crashed in 1998 due to a disease outbreak, and only 20 sheep were observed in subsequent surveys. The hunting season was closed in 1999 and the population has been slowly rebuilding. This population has also been impacted by mining activities at the Zortman and Landusky gold mines, and several sheep died from cyanide poisoning in the 1980s and 1990s. Since the closure of these mines in 1998, sheep distribution has changed, and sheep now frequent reclaimed mining lands throughout most of the year. It also appears that interchange of rams occurs between this population and Hunting District 680.

## HUNTING DISTRICT 482

Hunting District 482 has approximately 150mi<sup>2</sup> of occupied sheep habitat, which is less occupied habitat than on the north side of the Missouri River in Hunting District 680. Population trend data for Hunting District 482 is summarized in Figure 1 and Table 1. Over the years, Hunting District 482 has usually had proportionately fewer ewes and more rams than Hunting District 680. This is not a result of harvest management, but more a consequence of subtle differences in habitat and habitat selection. Furthermore, the Missouri River, which separates Hunting District 482 from Hunting District 680, is not an impediment to sheep. Movements of sheep between these two hunting districts are probably not uncommon occurrences during certain times of the year. Coordination and collaboration

between FWP Regions is necessary in managing these two hunting districts as one population, and in accounting for these nuances.

## HUNTING DISTRICT 680

Bighorn sheep numbers have been steadily increasing in Hunting District 680 since the initial transplant of 28 sheep in 1980. One of the earliest surveys was conducted by BLM personnel in December 1986. A total of 63 sheep were observed on the north side of the Missouri River, including 18 rams. Surveys conducted by FWP using fixed-wing aircraft in 1990, 1992, and 1994 resulted in observations of a total of 48, 73, and 83 total sheep, respectively (Figure 2 and Table 2). Helicopter surveys were initiated in 1995, and 227 sheep

Figure 1.  
Total number  
of bighorn  
sheep observed  
during aerial  
trend surveys in  
Hunting District  
482, 1992-2008.

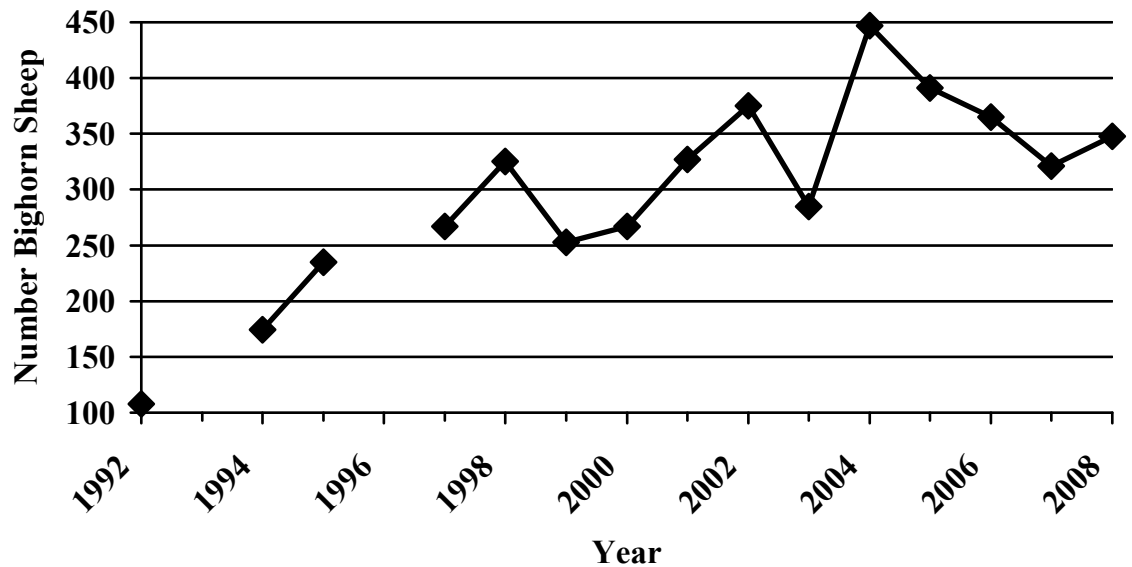


Table 1.  
Bighorn sheep  
population  
parameters,  
Hunting District  
482, 1992-2008.

Year	Ewes	Lambs	Rams	¾+ Rams	Unclass.	Total
1992	33	25	34	11	16	108
1994	34	34	50	27	39	174
1995	104	56	75	42		235
1997	86	44	83	31	36	267
1998	151	73	101	70		325
1999	120	47	86	42		253
2000	121	81	65	36		267
2001	146	64	117	56		327
2002	150	95	110	45	20	375
2003	117	80	88	47		285
2004	202	94	151	55		447
2005	141	95	155	80		391
2006	144	69	152	89		365
2007	130	83	108	60		321
2008	170	73	105	59		348

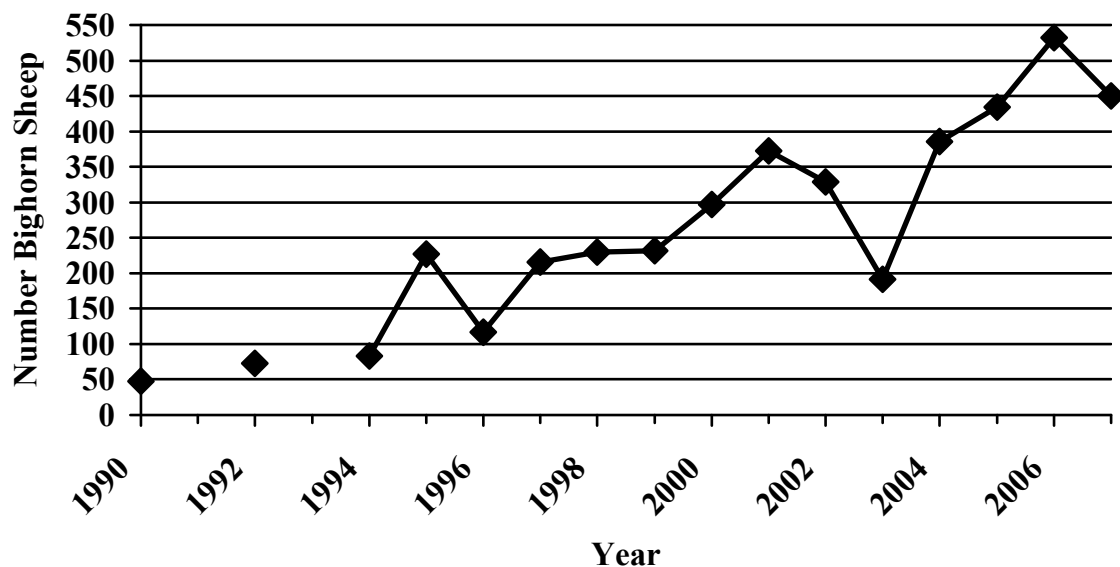


Figure 2.  
Total number  
of bighorn  
sheep observed  
during aerial  
trend surveys in  
Hunting District  
680, 1990-2007.

Year	Ewes	Lambs	Rams	$\frac{3}{4}+$ Rams	Unclass.	Total
1990	24	8	16	2		48
1992	37	6	30	18		73
1994	40	15	28	15		83
1995	88	40	99	42		227
1996	44	19	54	22		117
1997	117	22	77	38		216
1998	139	59	32	21		230
1999	119	66	47	25		232
2000	126	86	65	24		297
2001	161	102	110	39		373
2002	154	80	95	33		329
2003 <sup>1</sup>	80	31	80	43		191
2004	172	80	134	63		386
2005	201	111	122	55		434
2006	260	130	142	75		532
2007	235	96	119	84		450

Table 2.  
Bighorn sheep  
population  
parameters,  
Hunting District  
680, 1990-2007.

<sup>1</sup> The survey in 2003 only covered a portion of the area because of mechanical problems with the helicopter.

were observed that year. Counts continued to steadily increase until 2006 when a total of 532 bighorns were observed, including 142 rams of which more than half were  $\frac{3}{4}$ -curl or larger. The total count in 2007 was slightly lower at 450 after 60 sheep were trapped and transplanted during the previous two winters and the ewe harvest had increased the previous fall. Lamb production in all years has been excellent, ranging from 40 to 60 lambs: 100 ewes.

A research study was conducted on these sheep in the late 1990s, during which a total of 30 sheep were trapped and collared. The sheep with radio transmitters were monitored for three years, and habitat use, sheep movements and distribution, and population estimates for this herd were determined.

## HUNTING DISTRICT 622

Hunting District 622 has approximately 116mi<sup>2</sup> of occupied sheep habitat and is located on the north side of Fort Peck Reservoir. Sheep habitat in this hunting district is more limited and of lower quality when compared to other Missouri River Breaks bighorn sheep hunting districts and thus supports lower population densities of bighorns as compared to Hunting Districts 482 and 680. Ewe habitat is especially limited in the Mickey-Brandon Buttes area and habitat degradation is a concern due to the high concentration of ewe bands on this small area. Population data for Hunting District 622 is summarized in Figure 3 and Table 3. Between 1997 and 2001, lamb and ewe numbers dropped to less than half of previous levels in

Figure 3.  
Total number  
of bighorn  
sheep observed  
during aerial  
trend surveys in  
Hunting District  
622, 1988-2008.

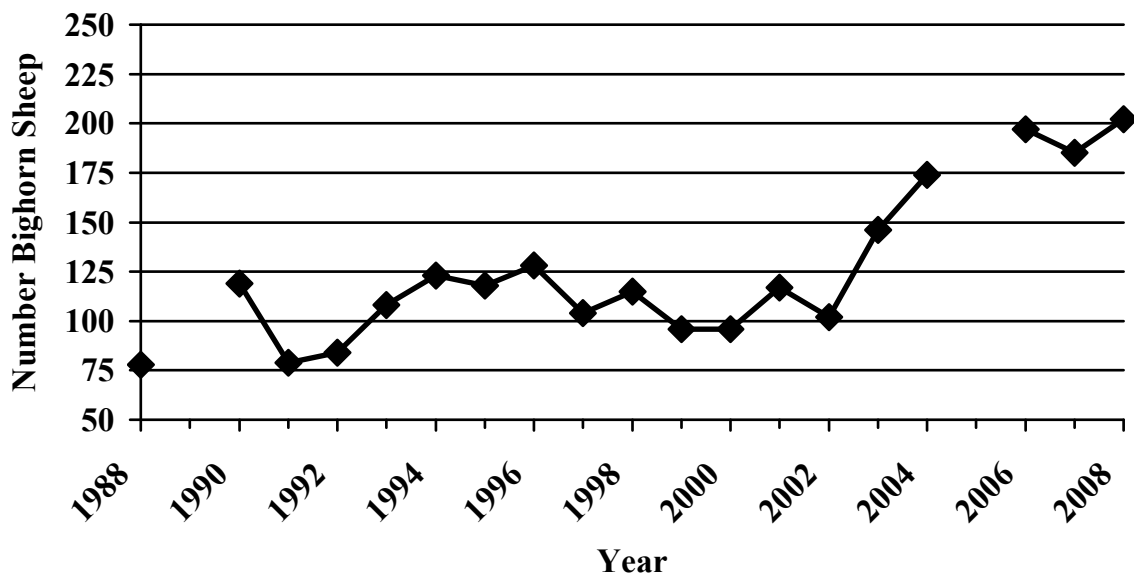


Table 3.  
Bighorn sheep  
observed during  
surveys <sup>1/</sup>,  
Hunting District  
622, 1992-2008.

Year	Ewes	Lambs	Rams	¾+ Rams	Unclass.	Total
1986	51	14	46	10	0	91
1988	30	11	34	4	3	78
1990	49	28	36	7	6	119
1991	42	9	27	4	1	79
1992	38	8	32	5	6	84
1993	46	18	27	7	0	91
1994	66	27	30	20	0	123
1995	55	28	23	8	12	118
1996	46	26	52	16	4	128
1997	46	18	40	11	0	104
1998	52	16	47	14	0	115
1999	32	7	54	15	3	96
2000	35	18	42	21	1	96
2001	47	17	51	28	2	117
2002	41	19	33	11	9	102
2003	57	45	41	17	3	146
2004	57	36	66	17	15	174
2006	80	39	73	37	5	197
2007	90	41	54	14	0	185
2008	82	38	82	40	0	202

<sup>1/</sup> Surveys were conducted using a helicopter in 1986, 1988, 1994-1997 and 2006-2008. All other years were counts from the ground using 11 to 23 people.

the Mickey-Brandon Buttes subpopulation. Although no sick or dead animals were found, this decrease is believed to have been disease and nutrition related and was largely the result of very poor reproduction for a period of 5 years. By 2002, habitat conditions improved on the Buttes, due to decreased grazing and browsing pressure by sheep and sheep numbers subsequently rebounded. Bighorn sheep in the Iron Stake Ridge/Larb Hills area did not experience this population decline and sheep have been steadily increasing in this area and also adjacent habitat in deer and elk Hunting District 631.

## HUNTING DISTRICT 620

Hunting District 620 has approximately 43mi<sup>2</sup> of occupied sheep habitat and is located in the Little Rocky Mountains. Sheep habitat in this hunting district consists of grassy meadows on the southern face of this small mountain range, reclaimed areas of the Zortman and Landusky gold mines, and several interior mountain peaks. The closure of the Zortman and Landusky mines in 1998, along with reclamation of mining land, has resulted in a decrease in disturbance and improved habitat conditions for these sheep. Most of the sheep in this hunting district are now found on grassy slopes within



reclaimed mine lands. Population data for Hunting District 620 is summarized in Figure 4 and Table 4.

**Recreation Provided:** The Missouri River Breaks is nationally recognized as a premier sheep hunting area in North America, and licenses for this area are highly coveted. Between 1982 and 2007, a total of 469 either-sex sheep licenses were issued for Missouri River Breaks hunting districts. These lucky hunters harvested 459 rams for an amazing success rate of 98%. During this time period, 301 adult ewe licenses for these units were also issued to hunters.

Wildlife viewing and photography are other important activities provided by these sheep

populations. River floaters on the “Wild and Scenic” portion of the Missouri River (within the Breaks National Monument) frequently see bighorn sheep along the steep ridges overlooking the river, or if they are especially lucky, a band will be along the shoreline, having come down for a drink. Likewise, most hunters and fishermen utilizing the Charles M. Russell NWR will never have a sheep license in their pocket, but it is common to see bighorn sheep while deer or elk hunting on the refuge or when fishing on Fort Peck Reservoir.

**Current Annual Bighorn Sheep Harvest:** Hunting District 482 provides varied hunting opportunities. Most of the bighorn sheep in this

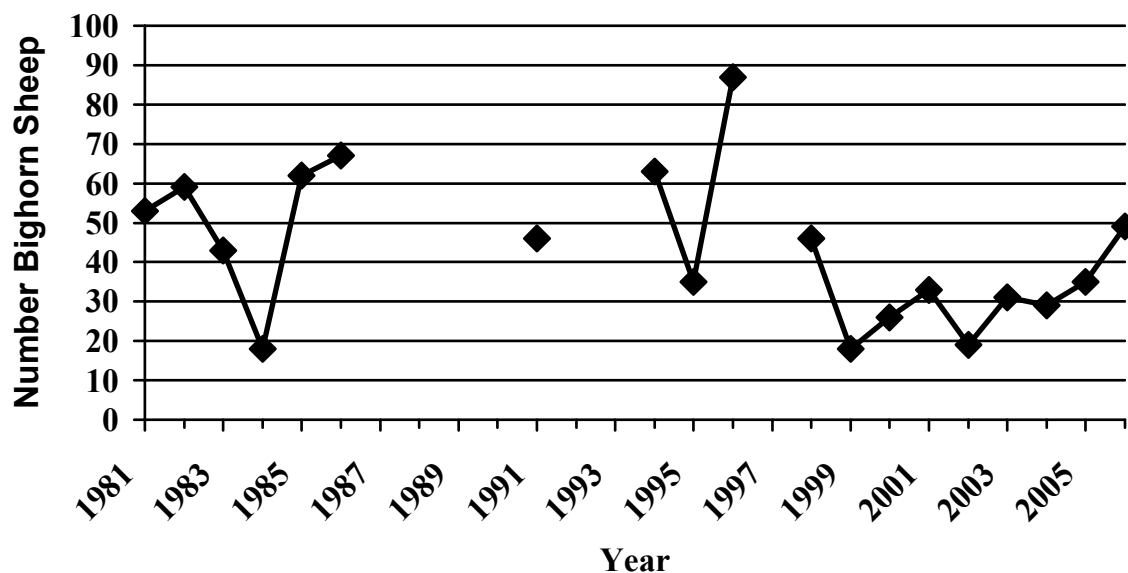


Figure 4. Total number of bighorn sheep observed during aerial trend surveys in Hunting District 620, 1981-2006.

Year	Ewes	Lambs	Rams	$\frac{3}{4}+$ Rams	Unclass.	Total
1981	28	28	11	0	0	53
1982	22	13	13	0	15	59
1983	24	13	6	1	0	43
1984	10	6	2	0	0	18
1985	26	8	16	1	12	62
1986	30	20	17	4	0	67
1991	9	9	5	0	23	46
1994	40	17	2	0	0	63
1995	26	9	0	0	0	35
1996	44	23	16	1	4	87
1998	11	9	10	0	16	46
1999	0	0	3	0	15	18
2000	0	0	2	0	24	26
2001	0	0	4	1	29	33
2002	7	6	4	1	4	19
2003	19	8	6	1	0	31
2004	10	9	10	3	0	29
2005	20	11	4	0	0	35
2006	12	7	5	0	25	49

Table 4. Bighorn sheep population parameters, Hunting District 620, 1981-2006.

district can be reached by boat on the Missouri River, then by hiking up into the Breaks sheep habitat from the river below. This is a very strenuous but doable approach, except when the river freezes. Sheep can also be reached more easily from on top. About one-half of the sheep habitat can be accessed from above by way of public roads or public two-track roads on BLM lands. Access to the remaining sheep habitat requires landowner permission, as there are no legal public access roads across some private lands to the BLM lands beyond. Some landowners in Hunting District 482 outfit or charge an access fee to hunt on their land or to cross their land.

Based primarily on concerns related to disease and potential die-offs, and recognizing that virtually all suitable sheep habitat in Hunting District 482 has basically been occupied for the past 10 years, the population objective for Hunting District 482 is, to hold the population at 350 observed sheep pre-hunting season, while maintaining enough mature rams so the average age of harvested rams is 6.5 years old. A sub-objective is to keep ewe numbers at 150, or slightly below. Harvest data is summarized for Hunting District 482 in Table 5. The average age of rams harvested in 2007 was 6.9 years old. Since 1999, there have been 99 rams harvested in Hunting District 482, which averaged 7.0 years old. And since 1999, the median number of ewes counted during preseason aerial surveys was 141 ewes (Table 1).

Hunting of bighorn sheep in Hunting District 680 was initiated in the fall of 1987 with the issuance of two either-sex licenses, which were valid on both the north and south sides of the Missouri River (Table 6). As the population increased, the number of either-sex licenses were increased to five in 1988 and to 15

in 1995. In 1996, the Missouri River was used to divide the hunting district into two areas, which today are Hunting District 680 north of the Missouri River and Hunting District 482 south of the Missouri River.

The number of either-sex licenses in Hunting District 680 has been steadily increased, with 20 issued in 2007. For the rams harvested in 2007 in Hunting District 680, the average age was 7.3 years, the average base circumference of the larger horn was 16.2 inches, and the average length of the longer horn was 39.2 inches.

As bighorn sheep numbers continued to increase, ewe licenses were initiated in 1996 with 10 licenses being issued for Hunting District 680. The number of ewe licenses was increased to 20 in 2002, to 30 in 2005, to 40 in 2006, and to 60 in 2007. The number and types of licenses issued for Hunting District 680 is listed in Table 6. The population objective for bighorn sheep in this unit is 450 sheep plus or minus 10%. All sheep habitat in this unit has been occupied for at least the last 10 years.

Hunting District 622 also provides good hunting opportunities for those lucky enough to draw a sheep license for this area. Most of the bighorn sheep in Hunting District 622 can be accessed through public land managed by the BLM or Charles M. Russell NWR. Since all the sheep within the refuge occur in roadless areas, hunters must be prepared for a hike of at least several miles. Access to sheep habitat on BLM land in the Larb Hills can also be difficult since private land blocks the best access points. Hunters can reach some of this sheep habitat by hiking in from the sides, but this is a difficult approach since it involves traversing wide canyons with steep sidewalls. Another way to access remote sheep habitat in Hunting District 622 is by boat from Fort Peck Reservoir.

Table 5.  
Number and  
types of licenses  
issued and  
subsequent  
harvest, Hunting  
District 482,  
1996-2007.

Year	Number Either-Sex Licenses	Ram Harvest	Number Ewe Licenses	Ewe Harvest
1996	8	8	8	5
1997	8	8	8	7
1998	8	8	10	8
1999	8	8	2	1
2000 <sup>1</sup>	8	9	2	2
2001	8	8	2	2
2002 <sup>1</sup>	8	9	2	2
2003 <sup>1</sup>	12	13	2	1
2004 <sup>1</sup>	10	11	2	2
2005	10	10	2	1
2006 <sup>1</sup>	15	16	20	12
2007 <sup>1</sup>	15	16	20	17

<sup>1</sup> The Montana bighorn sheep auction license holder harvested a sheep in this hunting district these years.

Year	Number Either-Sex Licenses	Ram Harvest	Number Ewe Licenses	Ewe Harvest
1987	2	2	-	-
1988	5	5	-	-
1989	5	5	-	-
1990	5	5	-	-
1991	5	5	-	-
1992	5	5	-	-
1993	5	5	-	-
1994	6	6	-	-
1995	15	14	-	-
1996	15	15	10	8
1997	15	15	10	6
1998	10	10	10	6
1999	10	10	1	1
2000	10	10	10	6
2001	10	10	10	7
2002	15	13	20	13
2003	10	8	20	10
2004	10	9	20	13
2005	15	16 <sup>1</sup>	30	12
2006	15	14	40	23
2007	20	19 <sup>2</sup>	60	23

Table 6.  
Number and  
types of licenses  
issued and  
subsequent  
harvest,  
Hunting District  
680, 1987-2007.

<sup>1</sup> The Montana bighorn sheep auction license holder harvested a sheep in this hunting district in 2005.

<sup>2</sup> The auction license holder also harvested a sheep in this hunting district in 2007.

Although hiking up ridges from the lake is a difficult task, sheep are also occasionally found close to the water.

Based primarily on concerns related to disease and potential die-offs, and recognizing that most suitable sheep habitat in Hunting District 622 has been occupied for the past 10 years, the population objective is 175 to 200 observed sheep, while maintaining enough mature rams so the average age of harvested rams is at least 6.5 years old. A sub-objective is to keep preseason ewe numbers between 25 and 30 on Mickey and Brandon Buttes. The average age of rams harvested in 2007 was 7.5 years old. Since 1987, there have been 97 rams harvested in Hunting District 622, which averaged 6.7 years old (Table 7). The average number of ewes observed on Mickey and Brandon Buttes since 1987 is 24.

Hunting was initiated in Hunting District 620 in 1982 but was closed following a die-off in 1998 (Table 8). Since that time no licenses have been issued for this hunting district; however, starting in 2008 either-sex bighorn sheep licenses in Hunting District 680 are also valid in Hunting District 620. This change was made because sheep have recovered from

the die-off and because there appears to be movement of rams between these two adjacent hunting districts. Hunting opportunities are marginal in the Little Rockies since most sheep occur on private land closed to hunting; however, some sheep also occur on land managed by the BLM that currently has good public access through private land enrolled in Block Management.

All sheep habitat within this hunting district is currently occupied, and sheep numbers have been rebuilding from the 1998 die-off. The population objective for Hunting District 620 is 75 to 100 sheep, but most of the sheep occur on privately owned mine lands, it is difficult to manage this population. Dense tree cover also makes it impossible to get accurate counts during aerial or ground surveys, but reports from mine reclamation workers indicate that this population currently numbers between 80 to 90 animals.

**Accomplishments:** The populations of bighorn sheep in all units of the Missouri River Breaks have increased relatively rapidly since the first transplants were made. The licenses for these hunting districts are highly sought after because



Table 7.  
Number and  
types of licenses  
issued and  
subsequent  
harvest, Hunting  
District 622,  
1987-2007.

Year	Number Either-Sex Licenses	Ram Harvest	Number Ewe Licenses	Ewe Harvest
1987	2	2	0	0
1988	5	5	0	0
1989	5	4	0	1
1990	5	4	0	0
1991	5	5	0	0
1992	5	4	0	0
1993	5	5	0	0
1994	5	5	0	0
1995	5	5	0	0
1996	7	7	5	4
1997	5	5	3	3
1998	4	4	1	0
1999	3	3	1	1
2000	3	3	0	0
2001	3	3	0	0
2002	4	4	0	0
2003	4	4	0	0
2004	4	4	0	0
2005	4	4	0	0
2006	7	7	0	0
2007	7	7	0	0
2008	7	7	1	1

Table 8.  
Number and  
types of licenses  
issued and  
subsequent  
harvest,  
Hunting District  
620, 1982-1998.

Year	Number Either-Sex Licenses	Ram Harvest	Number Ewe Licenses	Ewe Harvest
1982	2	2	0	0
1983	2	2	0	0
1984	2	2	0	0
1985	2	2	0	0
1986	2	2	0	0
1987	2	2	0	0
1988	5	4	0	0
1989	5	5	0	0
1990	5	5	0	0
1991	5	4	0	0
1992	5	3	0	0
1993	5	3	0	0
1994	2	2	0	0
1995	2	1	0	0
1996	2	2	0	0
1997	2	2	0	0
1998	2	2	0	0

of the numbers of rams available and the size of horns these rams produce. Many of these rams grow to a large size at an early age because of the high-quality habitat, sheep densities that are kept low relative to available habitat, and the fact that they do not migrate to separate summer and winter ranges. A large percentage of the sheep habitat in Hunting Districts 680 and 482 is within the Upper Missouri River

Breaks National Monument, and a large portion of sheep habitat in Hunting District 622 is within the Charles M. Russell NWR. These two areas attract a considerable amount of public attention for hunting as well as wildlife viewing.

FWP has conducted several capture and transplant operations on these sheep populations. In 2000, five ewes were captured in Hunting District 680 along with 15 ewes

from Hunting District 482, and all 20 were transplanted to the Elkhorn Mountains in Hunting District 380. In 2002, 16 ewes and four yearling rams were captured in Hunting District 680 and transplanted to the Hells Canyon area of Idaho and Oregon. In 2005, a total of 14 sheep were captured in Hunting District 680 along with 35 sheep from Hunting District 482 and transplanted to Nebraska. These sheep included 34 adult ewes, seven yearling ewes, three female lambs, four yearling rams, and one male lamb. In 2006, a total of 20 sheep (13 ewes, two yearling rams, three female lambs, and two male lambs) were captured in Hunting District 680 and transplanted to the Bighorn Mountains of Wyoming. Also in 2006, another 19 sheep (14 ewes, three yearling rams, and two male lambs) were captured in Hunting District 622 (Mickey-Brandon Buttes area of south Phillips County) and transplanted to the Little Missouri River breaks in North Dakota. In 2007, a total of 20 sheep (17 adult ewes, one yearling ram, and two adult rams—a two-year-old and a three-year-old were captured in Hunting District 680 and also transplanted to the Little Missouri River breaks. Another 20 sheep (15 adult ewes, one yearling ewe, three yearling rams, and a two-year-old ram) were captured in Hunting District 680 and transplanted to the Wildcat Hills in Nebraska.

**Management Challenges:** Access across private land to sheep habitat on public land is a problem in some areas. This makes it difficult to manage sheep within population objectives, especially when hunting is used as a management tool through the use of adult ewe licenses. FWP is working to acquire access agreements and Block Management Areas for sheep hunting in these hunting districts.

Another management challenge is keeping the populations within or below carrying capacity to reduce the potential of die-offs and habitat degradation. Implementing ewe hunting seasons and issuing sufficient numbers of licenses is one management option. Trapping and transplanting programs are also used. Sometimes sportsmen and land managing agencies are not supportive of these various management practices, and working with these individuals and agencies can at times be challenging, especially when some agencies, such as the Charles M. Russell NWR, have different management objectives and/or control road access on their lands.

The BLM travel plan, part of the Upper Missouri River Breaks National Monument Resource Management Plan, and Proposed Wilderness Areas within the CMR also restricts

access by eliminating spur roads and closing or seasonally closing other roads to provide habitat security for sheep and other wildlife species. This reduced access may increase the need to use trapping and transplanting programs to keep sheep within population objectives.

**Population Monitoring:** Aerial surveys are flown annually in Hunting Districts 482 and 680 and annually or biannually in Hunting District 622 using an FWP helicopter and FWP pilot. Surveys are conducted in July or August each summer in Hunting Districts 482 and 680. Surveys in Hunting District 622 are conducted during February while elk are being surveyed; a June ground survey is also conducted in the Mickey-Brandon Buttes area to better monitor ewe numbers and lamb production and recruitment. Hunting District 620 is only periodically surveyed due to dense timber in this area making it difficult to spot sheep. During surveys all bighorns are counted and classified by age and sex. Rams are classified into various horn-size categories.

## Management Goals

Manage for healthy and productive bighorn sheep populations having a diverse age structure of rams. Work with public land management agencies and private individuals in managing bighorn sheep habitat, and maintain excellent opportunity for bighorn sheep hunters to harvest sheep.

## Habitat Objectives

- 1) Develop cooperative programs that encourage public and private land managers to maintain approximately 300,000 acres of occupied bighorn sheep habitat.
- 2) Encourage improvement of habitat conditions on publicly owned lands (BLM and Charles M. Russell NWR) so vegetation conditions on these lands provide high quality forage and habitat for bighorns and all wildlife species.

## Habitat Management Strategies

- 1) The BLM (in cooperation with FWP) has developed allotment management plans that will enhance vegetation for the benefit of bighorn sheep and other wildlife species. Some vegetation manipulation through prescribed burning has also been implemented by the BLM to make areas more attractive as feeding sites for wildlife.

- 2) Work cooperatively with the Charles M. Russell NWR and BLM to manage bighorn sheep and other ungulates at population levels that will prevent habitat degradation from occurring. Sentinel shrub and forb species will be used as an indicator to the habitat's condition.

## Game Damage Strategies

Specific game damage problems with bighorn sheep occasionally occur in Hunting Districts 482 and 680. In these districts, many of the flat benchlands adjacent to rough breaks in the heart of the sheep habitat are privately owned lands that are seeded to small grains. Having sufficient numbers of ewe licenses and transplanting sheep as the population gets above objective levels helps to minimize game damage problems.

## Access Strategies

Access in most of these hunting districts is currently good; however, there are no long-term commitments that this will continue into the future. Several county roads, along with the Missouri River and Fort Peck Reservoir, provide access to some of the perimeter and core sheep habitat areas. FWP has pursued access agreements and Block Management contracts with private landowners who control access to public lands or have sheep on their properties. There are currently several ranches in Block Management in Hunting Districts 620 and 622, which provide good access to public land having bighorn sheep. FWP will continue to pursue access agreements, conservation easements, and block management agreements where possible, and continue to work with the BLM and Charles M. Russell NWR to maintain access roads to sheep habitat in these areas.

## Population Objectives

FWP bighorn sheep population objectives are designed to keep bighorn sheep habitat in a healthy condition and reduce crowding on ewe ranges. High-density populations can increase the spread of lungworm and other diseases. By managing sheep populations below the carrying capacity of their habitat, FWP hopes to prevent or minimize the occurrence of catastrophic die-offs.

- 1) Maintain the number of bighorn sheep observed during aerial surveys at 300 to 350 sheep for Hunting District 482, 400 to 450 sheep for Hunting District 680, 175 to 200 sheep for Hunting District 622, and 75 to 100 sheep for Hunting District 620.

- 2) For all hunting districts, maintain a ram to ewe ratio observed during aerial surveys of at least 45 rams: 100 ewes with at least 30% of the rams having a greater than  $\frac{3}{4}$ -curl.
- 3) For all hunting districts, maintain an average age of 6½ years for harvested rams.

## Population Management Strategies

Strategies to manage bighorn sheep populations are being based, in part, on how bighorn populations respond demographically within five ecological regions across Montana. Bighorn populations and therefore objectives for the various populations and subsequent monitoring programs vary across Montana and depend largely on the environment or ecological region where they occur. The Missouri River Breaks Complex bighorn sheep herds are located in the Prairie/Breaks ecological region (See Discussion of ecological regions in Chapter 1), which includes the Missouri River Breaks of central and eastern Montana. These bighorn herds are relatively recently established populations and are characterized as having moderate to high lamb production with good recruitment rates. These herds are at or above population objective with stable to increasing numbers and relatively high ram to ewe ratios. Bighorn numbers are currently being managed primarily through ewe harvest, modest harvest of rams, and transplanting to other areas.

The population objectives in the Missouri River Breaks Complex were derived by considering the ability of public and private lands to provide sufficient forage for the bighorn populations. Landowner tolerance was also a consideration. Population management strategies will be directed at maintaining bighorn numbers consistent with landowner tolerance as well as maintaining the number of sheep on public lands within forage allocations established in allotment management plans.

## Prescriptive Harvest Management

**Ewes:** Bighorn sheep populations are managed where necessary through limited-entry harvest of the female segment (Table 9).

**Standard Regulation:** The number of ewe licenses issued could be up to 25% of the number of ewes going into the fall season. The number of ewes going into the fall season would be based on the number of ewes observed during the annual survey.

The Standard Regulation will be recommended if: The total number of bighorns

PRAIRIE/BREAKS	No. Bighorns Counted on Survey Area	Recruitment Lambs: 100 Ewes	Regulation Types	Harvest Rates
Standard Regulation	± 10% of population objective	Between 30-40	Limited Entry Ewes	Up to 25% of Ewes
Restrictive Regulation	More than 10% below population objective	Less than 30	Fewer than 5 ewe licenses	Less than 10% of ewes
Liberal Regulation	Greater than 10% above population objective	Greater than 40	Limited Entry ewes and translocate if > 25 sheep including rams are available	Up to 25% of Ewes

Table 9. Summary of Regulation types under different population criteria for ewe harvest and population management.

counted on the survey area is within 10% of the population objective and lamb recruitment is between 30 and 40 lambs: 100 ewes.

**Restrictive Regulation:** Fewer than five ewe licenses would be prescribed.

The Restrictive Regulation will be recommended if: The total number of bighorns counted on the survey area is more than 10% below the population objective and lamb recruitment is less than 30 lambs: 100 ewes.

**Liberal Regulation:** If the number of ewes in the population exceeds the long-term average by greater than 10%, and the number of ewe licenses issued would exceed 25% of the number of ewes observed during aerial surveys, then capture and translocation of ewes will be used.

The Liberal Regulation will be recommended if: The total number of bighorns counted on the survey area is more than 10% above the population objective and lamb recruitment is greater than 40 lambs: 100 ewes.

### Rams:

**Standard Regulation:** Limited-entry through issuing either-sex licenses with the number of either-sex licenses issued being up to 25% of the

¾-curl rams in the population.

The Standard Regulation will be recommended if: The population is within objective (+ 10%), there are at least 40 to 60 rams: 100 ewes, and 40% of the rams are at least ¾-curl (Table 10).

**Restrictive Regulation:** Limited-entry through issuing either-sex licenses with the number of either-sex licenses issued being up to 10% of the ¾-curl rams in the population.

The Restrictive Regulation will be recommended if: The population is more than 10% below the population objective, there are less than 40 rams: 100 ewes, and less than 30% of the rams are at least ¾-curl.

PRAIRIE/BREAKS	Number of Either-Sex or Legal Ram Licenses Is	When the Herd Has		
		Population Size	Ram: 100 Ewe ratio	% of Rams with ≥ ¾-curl
Standard Regulation	Up to 25% of the ¾-curl rams	± 10% of Pop Obj.	40-60:100	≥ 40
Restrictive Regulation	Up to 10% of the ¾-curl rams	More than 10% below Pop Obj.	< 40:100	< 30

Table 10. Summary of potential ram harvest under different population parameters and criteria.